

[54] **MULTIFUNCTION SWITCH
INCORPORATING NCAP LIQUID CRYSTAL**

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[56] **References Cited**

U.S. PATENT DOCUMENTS

3,578,844	5/1971	Churchill	350/351
4,015,422	4/1977	Van Haagften	340/815.2
4,017,848	4/1977	Tannas, Jr.	340/712
4,078,257	3/1978	Bagley	364/900
4,192,060	3/1980	Washizuka et al.	29/592
4,224,615	9/1980	Penz	340/765
4,363,029	12/1982	Piliavin et al.	340/712
4,435,047	3/1984	Ferguson	350/334

4,468,659	8/1984	Ohba et al.	340/781
4,549,174	10/1985	Funada et al.	340/815.2
4,567,481	1/1986	Meier et al.	340/784

FOREIGN PATENT DOCUMENTS

3105981 2/1981 Fed. Rep. of Germany .

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[57] **ABSTRACT**

A switch apparatus comprising a nematic curvilinearly aligned phases liquid crystal material located between a pair of electrode means wherein a flexible substrate having a conductive segment formed therein may be positioned in a spaced substantially parallel relation to one of the electrode means. The flexible substrate has sufficient flexibility to deflect toward one of the electrode means in response to the application of pressure thereto so that at least a portion of the flexible substrate is deflected toward one of the electrode means to operatively couple the conductive segment to the electrode means to effect an input of information and to cause a display of the same.

33 Claims, 4 Drawing Sheets

